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<b>(21) International Application Number:</b> PCT/US92/09499 <b>(22) International Filing Date:</b> 6 November 1992 (06.11.92) <b>(30) Priority data:</b> 790,647 8 November 1991 (08.11.91) US <b>(71) Applicant:</b> PACKAGING INDUSTRIES, INC. [US/US]; 2450 Alvarado Street, San Leandro, CA 94577 (US). <b>(72) Inventor:</b> BORLAND, G., Barton ; 7202 Dumas Place, Newark, CA 94560 (US). <b>(74) Agent:</b> KIRCHER, William, B.; Kokjer, Kircher, Bowman & Johnson, 911 Main Street, Suite 2414, Kansas City, MO 64105 (US).		<b>(81) Designated States:</b> CA, JP, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, SE).  <b>Published</b> <i>Without international search report and to be republished upon receipt of that report.</i>
<b>(54) Title:</b> ROLL STOCK FOR MAKING RESEALABLE BAGS AND RESEALABLE ROLL-FORMED BAG .  <b>(57) Abstract</b>  A roll stock of flexible packaging material is described for forming food product bags which are resealable and yet can be formed by standard form and fill machinery. The roll stock includes strips of a pressure sensitive material at discrete locations selected for bag mouths. The invention includes the bag resulting from use of the roll stock, as well as the method of processing the roll stock to provide resealable bag characteristics to the same.		

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1                   ROLL STOCK FOR MAKING RESEALABLE BAGS AND  
2                   RESEALABLE ROLL-FORMED BAG

3  
4  
5                   DISCLOSURE

6                   Background of the Invention

7                   The present invention relates to laminated packaging  
8                   material for forming bags for food products and, more  
9                   particularly, to a roll stock of such material from which  
10                  resealable bags can be made, a method of processing the  
11                  roll stock to enable such bags to be made, and a  
12                  resealable bag so formed.

13                 Most flexible packaging for food products, such as  
14                 chips and dry cereals, is formed in a relatively  
15                 continuous manner by machines which fill the packages  
16                 with the food product at the same time the packages are  
17                 formed. These machines are called "form, fill and seal"  
18                 machines and the flexible packaging material typically is  
19                 a laminant having a layer of a heat sealable material,  
20                 e.g., polyethylene, on one surface of the same. The  
21                 form, fill and seal machine wraps a web of the packaging  
22                 material around a forming mandrel with the edges of the  
23                 web overlapping. These edges are sealed together to  
24                 form, what is referred to in the art, a fin seal which

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1 extends lengthwise of a bag tube, i.e., a tube from which  
2 individual bags are made. After a bottom seal transverse  
3 to the fin seal is made, the food product desired to be  
4 packaged is placed in the bag tube so formed. An upper  
5 seal is then made to close the tube bag's mouth. The  
6 finished bag is cut from the tube. These operations are  
7 interwoven for several bags at the same time. The  
8 forming, filling and sealing procedure is continuous and  
9 quite fast to provide high volume packaging.

10 Many flexible packages are filled with more than one  
11 serving of the food product in question. For example,  
12 packages containing multiple servings of chips and dry  
13 cereal are often formed. The problem is that the  
14 consumer who opens a form and fill package has to break  
15 the heat seal at the upper end (mouth) of the package to  
16 have access to the contents. It would be desirable in  
17 order to maintain the freshness of the product remaining  
18 in a multiple serving bag, to be able to reseal the bag.  
19 This desirability has been known for some time. However,  
20 no universally acceptable reseal arrangement has been  
21 adopted. Because of such, it is not unusual for  
22 consumers to attempt to keep the product fresh by folding  
23 or rolling the bag top after it is opened. These steps  
24 often are futile.

25 Much effort has been expended toward developing a  
26 flexible resealable package which is acceptable. The  
27 arrangement described in U.S. Patent No. 4,786,190 is  
28 typical in that it provides a bag design for resealing -  
29 a design, however, which cannot be made from roll stock  
30 to be used on standard form and fill machinery. That is,  
31 although this bag design includes both a pressure  
32 sensitive adhesive and a destructible heat seal at the  
33 bag mouth, the bag itself is formed simply by heat  
34 sealing the edges of one or two separate sheets together,  
35 a bag design which is foreign to use with standard form,

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1 fill and seal machines. The presence of the exposed  
2 pressure sensitive adhesive will interfere with the  
3 formation, filling and sealing operation, even if the bag  
4 design otherwise was adaptable to use by standard form,  
5 fill and sealing machinery. If roll stock for this bag  
6 design was made, adjacent sheets of the roll stock will  
7 stick together.

8 Others have provided relatively complicated  
9 mechanical closure arrangements to effect bag mouth  
10 closures. An example is the interlocking arrangements  
11 which are similar to a zipper. These arrangements simply  
12 have been too expensive, complicated and/or sufficiently  
13 prone to failure to warrant adoption for most high volume  
14 uses in spite of the need. Efforts to provide a  
15 resealable closure have even resulted in the use of  
16 auxiliary tapes and the like as described for example in  
17 U.S. Patent Nos. 4,722,166 and 4,913,560. This approach  
18 is also quite expensive and slow, and its adoption in  
19 high volume, form and fill type of flexible packaging has  
20 been precluded.

## 21 Summary of the Invention

22 The present invention provides a roll stock of  
23 flexible packaging material from which resealable bags  
24 for food products can be made economically with standard  
25 form and fill machinery. In its basic aspects, the  
26 invention is a roll stock of flexible packaging material  
27 which not only includes a substrate as is usual, but a  
28 pressure sensitive material at discrete locations to  
29 provide closures in bags, such as bag mouths, made from  
30 such roll stock. In keeping with the invention, a non-  
31 pressure sensitive material is also included as part of  
32 the roll stock covering the pressure sensitive material  
33 to render the same inoperative during subsequent  
34 utilization of the roll stock.

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1 Most desirably, the non-pressure sensitive material  
2 is a heat sealable material, such as polyethylene,  
3 ethylene/vinyl acetate copolymers or certain ionomers  
4 such as Dupont's SURLYN™. The result is that the  
5 covering material has a dual function - it not only  
6 covers the pressure sensitive material, it enables a  
7 standard heat seal to be formed at the bag mouth at the  
8 same location as the pressure sensitive material. In  
9 other words, means for forming two different seals are  
10 provided at discrete locations on the roll stock, e.g.,  
11 the locations desired for bag mouths, means for forming  
12 an initial heat seal and means for forming a subsequent  
13 pressure sensitive seal. The thickness of the heat  
14 sealable material at the location at which it covers the  
15 pressure sensitive material is selected so that when a  
16 heat seal formed by the same is destroyed, the pressure  
17 sensitive material will be exposed for forming a  
18 subsequent seal at the desired location. The consumer,  
19 after the initial heat seal is broken in order to have  
20 access to the food product, can reseal the bag mouth with  
21 use of the pressure sensitive material.

22 The pressure sensitive material is provided in a  
23 pattern on the roll stock in the preferred arrangement to  
24 provide the closures in bags made therefrom at the  
25 discrete locations, e.g., at the locations for bag  
26 mouths. Other areas of the laminated packaging material  
27 at which it may be desired to form heat seals is  
28 maintained free of the pressure sensitive material in  
29 order to assure that it does not interfere with desired  
30 strong heat seals. Most simply, the pattern is applied  
31 to a layer of the heat sealable material which is first  
32 applied to the substrate, and a subsequent layer of the  
33 heat sealable material is applied over the full surface  
34 area of the substrate. The result of this construction  
35 is that the pressure sensitive material is embedded in  
36 heat sealable material. The heat sealable material can

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1 be used to form the standard heat seals on a form and  
2 fill machine. The heat seal formed at the location of  
3 the pressure sensitive material, though, will not have as  
4 much heat sealable material involved in the seal as is  
5 typical. When the seal is destroyed, the pressure  
6 sensitive material will be exposed as discussed above to  
7 enable subsequent sealing at its location.

8 The invention includes not only the roll stock, but  
9 a method of processing roll stock to provide the pressure  
10 sensitive material and the resulting bag.

11 Brief Description of the Drawings

12 With reference to the accompanying two sheets of  
13 drawing:

14 FIG. 1 is a plan view of a piece of a preferred  
15 embodiment of flexible packaging roll stock conforming to  
16 the invention;

17 FIG. 2 is an enlarged partial sectional view showing  
18 the various layers of such preferred embodiment;

19 FIG. 3 is a schematic, side elevation view of  
20 apparatus for processing roll stock in accordance with  
21 the invention;

22 FIG. 4 is a generally schematic perspective view of  
23 standard form and fill machinery, forming bags from roll  
24 stock of the invention;

25 FIG. 5 is a perspective schematic view of a bag  
26 conforming to the instant invention; and

27 FIGS. 6 and 7 are enlarged schematic sectional views  
28 of a bag mouth illustrating the bag mouth with a heat

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1 seal enclosure that respectively is intact and destroyed  
2 in order to expose pressure sensitive material for  
3 resealing.

4 Description of the Preferred Embodiments

5 The following relatively detailed description is  
6 provided to satisfy the patent statutes. However, it  
7 will be appreciated by those skilled in the art that  
8 various changes and modifications can be made without  
9 departing from the invention as defined by the claims.

10 Reference is first made to FIGS. 5, 6 and 7 for a  
11 general overview of a reclosable bag, to simplify an  
12 understanding of the subsequent description of the  
13 preferred embodiment of the roll stock. A bag, generally  
14 referred to by the reference numeral 11, of flexible  
15 packaging material includes, as is usual, a pair of upper  
16 and lower opposed side walls 12 and 13. As mentioned  
17 previously and will be discussed in more detail below,  
18 the bag is formed from a tube of flexible packaging  
19 material roll stock. It includes a longitudinal fin seal  
20 14 formed by heat sealing together overlapping edges of  
21 the roll stock. It also includes a bottom heat seal 16  
22 which is transverse to the fin seal. The bottom seal has  
23 to be sufficiently strong to withstand the weight of the  
24 food product against the same, as well as movement of the  
25 same such as will be discussed. The upper end of the  
26 bag, i.e., the bag mouth, is also closed with a heat seal  
27 17. In accordance with the invention, a pattern of a  
28 pressure sensitive material 18 is embedded within the  
29 heat sealable material 17 at the bag mouth to be exposed  
30 when the former is destroyed by the consumer for initial  
31 access to the bag's interior. In this connection, the  
32 thickness of the heat sealable material covering the  
33 pressure sensitive strip is selected so that when the  
34 heat seal formed by the same is destroyed, the pressure



1 sensitive material is exposed for forming a subsequent  
2 seal at the mouth. The thickness which is actually  
3 selected depends in large part on the materials involved  
4 and the weight, etc., of the food product to be packaged.  
5 In general, though, the thickness that is selected should  
6 be within the range of between about 0.2 mils and about  
7 0.7 mils.

8 FIGS. 6 and 7 show operation of the seal. FIG. 6  
9 illustrates the heat seal that is formed at the bag's  
10 mouth, whereas FIG. 7 illustrates that when the heat seal  
11 is broken, the pressure sensitive material will be  
12 exposed.

13 It is important to note that the pressure sensitive  
14 material is provided at the location at which it is  
15 desired to operate, but not at the other locations at  
16 which there is to be a heat seal, such as at the location  
17 for the bottom seal, a location at which a strong heat  
18 seal is to be provided. For example, if pressure  
19 sensitive material was sandwiched between the heat  
20 sealable material layers at the location of the bottom  
21 seal, there would be a loss in hot tack resulting in  
22 product dropping through the bottom seal while the same  
23 is molten.

24 A piece 21 of the roll stock from which the  
25 resealable bag is made is illustrated in FIG. 1.  
26 (Although roll stock for forming a single bag tube is  
27 illustrated, as a practical matter the operations  
28 described relative to FIG. 3 form wider roll stock  
29 designed for a multiple number of bag tubes. The wider  
30 roll stock so formed is then cut into the narrower roll  
31 stock illustrated for forming individual bag tubes.)  
32 Such roll stock is a laminant made up of a substrate 22  
33 (FIG. 2) such as a metal foil, a polyester, or a  
34 cellophane, as is standard practice in the industry. The

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1 substrate is selected to be thermally stable if it is to  
2 be resistant to heat applied thereto such as to provide  
3 the heat sealing to be described below. The substrate  
4 includes on one surface, an ink pattern represented at 23  
5 which provides advertising, product identification, etc.  
6 A layer 24 of a heat sealable material, such as  
7 polyethylene, is provided over the ink. In this  
8 connection, a primer or adhesive layer 25 is also  
9 provided between the polyethylene layer and the ink to  
10 assure good adhesion. Although the layer 24 in this  
11 preferred embodiment is polyethylene, insofar as the  
12 broad concepts of the invention is concerned the layer 24  
13 could be of any heat sealable material.

14 A pattern of a pressure sensitive material is  
15 provided on layer 24 at those discrete locations for bag  
16 mouths or other bag closures. The Ribbon Coater  
17 available from Graco/LTI of Monterey, California, can be  
18 used to provide the desired pattern. Acumeter of  
19 Marlborough, Massachusetts also provides a suitable  
20 ribbon coater. To facilitate deposition of the pattern,  
21 the printing on the substrate includes "eye spots" 26  
22 which are sensed as will be discussed hereinafter to  
23 control the application of pressure sensitive material as  
24 the desired pattern. This pattern in the preferred  
25 embodiment is made up of strips 27 indicated in FIG. 1.  
26 Each of the strips has a thickness in the range of  
27 between about .5 mils and about 1.5 mils. Its thickness  
28 is preferably 1.0 mils. As a means to aid set-up, the  
29 printing also can include a locating strip 28 or the like  
30 to facilitate finding the pressure sensitive strips 27.  
31 Another layer 29 of polyethylene or other heat sealable  
32 material is provided over the full surface area of the  
33 roll stock to cover the pattern formed by the strips 27.  
34 This covering layer should have the characteristics  
35 necessary for the material to be compatible with the  
36 form, fill and seal machinery with which it is to be

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1 used. For example, it should have both slip and hot tack  
2 characteristics. A slip concentrate is added to the  
3 polyethylene to provide a low enough coefficient of a  
4 friction to enable the packaging material to slide over  
5 the metal parts of such machinery. "Hot tack" is  
6 inherent in the polyethylene resin and comes into play  
7 when a food product is dropped into the bag while the  
8 bottom seal is still molten - inadequate hot tack causes  
9 the product to drop through the bottom seal.

10 Although in this embodiment layer 29 covers the full  
11 surface area of the roll stock, other arrangements are  
12 potentially appropriate. For example, two separate heads  
13 could be used, one applying a pattern of the pressure  
14 sensitive material and the other applying a pattern of  
15 heat sealable material only on those locations having the  
16 heat seal material. It is also possible that a single  
17 pattern applicator could be used to apply both of the  
18 materials in the proper order at the same time. A tape  
19 with the heat sealable material and the pressure  
20 sensitive material could be applied at the discrete  
21 locations.

22 The resulting construction is that the strips 27 are  
23 embedded in heat sealable material, i.e., between the  
24 layers 24 and 29. Most desirably, the material of the  
25 layers 24 and 29 are the same or otherwise compatible  
26 with one another so that they combine for heat sealing  
27 purposes at those locations not having the strips 27. It  
28 is common to provide a film or layer comparable to layer  
29 24 for heat sealing purposes. In this instance the  
30 thickness of the layer 24 can be reduced in view of the  
31 layer 29 if the bag otherwise has sufficient strength to  
32 prevent tearing.

33 It will be appreciated that the layer 29 renders the  
34 strips 27 inoperative until such time as the heat seal at

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1 their location is broken. In this connection, the heat  
2 seal which will be formed as discussed below at the bag  
3 mouth or other closure will be provided at the location  
4 of the strip 27 only by the heat sealable material  
5 covering such strip. (Of course, the other wall of a bag  
6 will not have the pressure sensitive strip of material.)  
7 This heat sealable material is most simply polyethylene  
8 having a thickness covering the strips 27 in the range of  
9 about 0.2 mils to 0.7 mils, preferably 0.4 mils.

10 In one arrangement, the substrate was cellophane  
11 having a thickness of about 0.8 mils, the layer 24 was  
12 polyethylene having a thickness of about 1.25 mils  
13 adhered to the cellophane by a thickness of about .1 mil  
14 of adhesive, each of the pressure sensitive strips had a  
15 thickness of about 1.5 mils, and the covering layer was  
16 also polyethylene having a thickness of about 0.6 mils.  
17 The pressure sensitive material was provided as a hot  
18 melt by H. B. Fuller of St. Paul, Minnesota, sold with  
19 the designation H.L.-2115-X. H. B. Fuller has other hot  
20 melts which can be used. Other appropriate melt pressure  
21 sensitive adhesives are sold by Swift Adhesive of Downers  
22 Grove, Illinois, and by National Starch of Bridgewater,  
23 New Jersey.

24 Although the packaging material is described as  
25 having a particular order of materials, the use of the  
26 terms "in order" here and in the claims is not meant to  
27 require that each of the layers which is described be  
28 immediately adjacent other layers in the order. There  
29 can be intermediate layers in accordance with standard  
30 practice.

31 FIG. 3 is a simplified diagrammatic view of those  
32 aspects of a flexible packaging processing apparatus  
33 relevant to the instant invention. A roll of a substrate  
34 (not shown) is unwound in a continuous manner to provide

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1 a web 31 of the same. Printing is applied to such  
2 substrate in accordance with conventional practice to  
3 form the printing 23. (This process is not shown. The  
4 substrate with the printing thereon is then primed for  
5 application of polyethylene as will be described. This  
6 priming operation is also conventional and not shown. As  
7 indicated at the left portion of the figure, after the  
8 printed substrate is primed, it is passed through a  
9 station at which a film of polyethylene or other heat  
10 sealable material is extruded as a melt via extruder 32  
11 onto the same as it passes through the nip of a chill  
12 roll 33 and a pinch roll 34. A chilled back-up roll 36  
13 is provided to cool pinch roll 34. In accordance with  
14 conventional practice the film is at least partially  
15 solidified to form the layer 29 at the nip previously  
16 described. It then passes about chill roll 33 to  
17 complete sufficient solidification for the remainder of  
18 the process.

19 The web is then passed by an electric eye represented at  
20 37 which detects the locations of the eye spots 26 to  
21 control operation of patterning equipment for applying  
22 the pattern of pressure sensitive material to the web.  
23 That is, a signal indicative of the presence of an eye  
24 spot is transmitted as represented by line 38 to a  
25 pattern controller 39 which controls the operation of  
26 solenoid valves represented at 41 for a coating head 42  
27 for applying the pattern of heat sealable material to the  
28 web. In one embodiment, a Ribbon Coater from Graco/LTI  
29 of Monterey, California, was used as the coating head. A  
30 supply of the pressure sensitive material in hot melt  
31 form is contained in a reservoir in a hot melt delivery  
32 system represented at 43. The pressure sensitive  
33 material in melt form is delivered via a heated hose 44  
34 to the head 42.

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1 It will be recognized that with such arrangement the  
2 strips 27 will be deposited on the web at the desired  
3 discrete locations on the layer 24. The covering layer  
4 29 of the heat sealable material is then applied. It is  
5 applied over the full surface of the web. This provides  
6 a non-stick, heat sealable surface with adequate slip and  
7 hot tack to operate on the selected form, fill and seal  
8 machinery. The application of the same at the nip  
9 between a chill roll 47 and a pinch roll 48 is  
10 represented by the showing of the extruder 46. A back-up  
11 chill roll 49 for the pinch roll is also illustrated.  
12 The web is completed with any other processing steps  
13 desired and then formed into a roll 51 in accordance with  
14 conventional practice.

15 FIG. 4 is a simplified schematic perspective view of  
16 a standard form, fill and machine utilizing roll stock of  
17 the invention. The roll stock, represented by reference  
18 numeral 51, is unwound to form a web 52 which after  
19 passing about and through various rollers in accordance  
20 with conventional practice is wrapped around a mandrel 53  
21 to form a tube 54. The overlapping edges of the material  
22 are heat sealed together by a standard mechanism  
23 represented by the blocks 56. In this connection, the  
24 tube is advanced along the mandrel by conventional  
25 apparatus represented by the belts 57. The tube is heat  
26 sealed transverse to the fin seal as is represented by  
27 blocks 58 to form the bottom seal of a tube bag. The  
28 food product desired to be packaged is fed into the tube  
29 bag through the mandrel as is represented by the hopper  
30 59 shown in dotted lines. The upper end of the bag is  
31 then sealed to enclose the food product, and the  
32 completed bag is severed from the remainder of the tube.  
33 These operations also are accomplished by the blocks  
34 represented at 58. The bottom seal for the next tube bag  
35 is formed simultaneously with the formation of the bag  
36 upper seal and the severing, to form a free bag.

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1           It will be recognized from the above that operation  
2   of the form, fill and seal machine is oblivious of the  
3   fact that the roll stock includes an embedded heat  
4   sealable material at the location of the mouth of the  
5   completed bags. The blocks 59 form a heat seal in the  
6   standard manner. However, as will be recognized the  
7   completed bag includes the heat seal strip at the bag  
8   mouth as discussed previously.

9           As mentioned at the beginning of the detailed  
10   description, Applicant is not limited to the specific  
11   embodiments described above. For example, the bag  
12   closure having the pressure sensitive material need not  
13   necessarily be the bag's mouth. The invention is  
14   applicable to providing covered pressure sensitive  
15   material at any location(s) at which resealing of a bag  
16   penetration may be desired. Moreover, the pressure  
17   sensitive material and the covering/heat sealable  
18   material can be provided together as a tape, with or  
19   without an appropriate backing. Such a tape could be,  
20   for example, applied to the edge of the roll stock as it  
21   is unrolled into the web to provide a bag closure at the  
22   fin seal of bags. The claims and their equivalents  
23   define the scope of protection.

## CLAIMS

1

2 What is claimed is:

1

1. A roll stock of flexible packaging material to be used to make resealable bags for food products comprising, in order:

3

4

(a) a substrate;

5

(b) a pressure sensitive material selected to provide pressure sensitive material at discrete locations for closures in bags made from said roll stock; and

6

7

8

(c) a non-pressure sensitive material covering said pressure sensitive material to render the same inoperative during subsequent utilization of said roll stock.

10

11

1

2. The roll stock of claim 1 wherein there is a pattern of said pressure sensitive material.

2

1

3. The roll stock of claim 1 wherein said pressure sensitive material has a thickness at said discrete locations of between about .5 mils and 1.5 mils.

2

3

1

4. The roll stock of claim 3 wherein said thickness is about 1.0 mils.

2

1

5. The roll stock of claim 1 wherein said non-pressure sensitive material is another sealing material for sealing said closure when said pressure sensitive material is inoperative.

2

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6. The roll stock of claim 1 wherein said substrate is thermally stable, and said non-pressure sensitive covering material is polyethylene having a thickness at said discrete locations in the range of about 0.2 mils to about 0.7 mils.

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1           7.    The roll stock of claim 6 wherein said  
2 polyethylene has a thickness of about 0.6 mils at said  
3 discrete locations.

1           8.    The roll stock of claim 1 wherein said  
2 substrate is thermally stable and said non-pressure  
3 sensitive material is a heat sealable material at said  
4 discrete locations for forming initial heat seal  
5 closures thereat that can be destroyed and expose the  
6 pressure sensitive material at each of said locations for  
7 forming a subsequent seal at each of said closures.

1           9.    The roll stock of claim 8 wherein said heat  
2 sealable covering material has a thickness at said  
3 discrete locations in the range of about 0.2 mils to  
4 about 0.7 mils.

1           10.   The roll stock of claim 8 wherein said  
2 laminated packaging material is free of pressure  
3 sensitive material at other locations at which it may be  
4 desired to form heat seals.

1           11.   The roll stock of claim 8 wherein a layer of  
2 heat sealable material is provided on said substrate  
3 between said substrate and said pressure sensitive  
4 material.

1           12.   The roll stock of claim 11 wherein said  
2 covering non-pressure sensitive material is a heat  
3 sealable material and said layer is of the same heat  
4 sealable material.

1           13.   The roll stock of claim 11 wherein said  
2 covering material is another layer of heat sealable  
3 material covering substantially the full surface of said  
4 substrate having said pressure sensitive material  
5 thereon.

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1           14. The roll stock of claim 13 wherein said  
2 pressure sensitive material is sandwiched directly  
3 between said layers of heat sealable material, thereby to  
4 be embedded in heat sealable material.

1           15. The roll stock of claim 14 wherein said  
2 substrate is cellophane and has a thickness of about 0.8  
3 mils, said layer of heat sealable material is  
4 polyethylene having a thickness of about 1.25 mils, said  
5 pressure sensitive material has a thickness of about 1.0  
6 mils, and said covering layer of heat sealable material  
7 is polyethylene having a thickness of about 0.4 mils.

1           16. A resealable, flexible bag for packaging a food  
2 product comprising:

3           (a) a pair of opposed walls which are heat sealed  
4 together to form a closure; and

5           (b) a pressure sensitive material at said closure  
6 usable to reseal the same after the heat seal thereat is  
7 destroyed; and

8           (c) a non-pressure sensitive material at said  
9 closure covering said pressure sensitive material thereat  
10 until said heat seal is destroyed.

1           17. The resealable bag of claim 16 wherein said  
2 pressure sensitive material has a thickness in the range  
3 of between about .5 mils and 1.5 mils.

1           18. The resealable bag of claim 16 wherein each of  
2 said walls when the thickness of said pressure sensitive  
3 material is ignored, is about 2.65 mils, and the  
4 thickness of said pressure sensitive material is about  
5 1.0 mils.

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1           19. The resealable bag of claim 16 wherein said  
2 non-pressure sensitive material is a heat sealable  
3 material having a thickness in the range of about 0.2  
4 mils to about 0.7 mils covering said pressure sensitive  
5 material.

1           20. The resealable bag of claim 16 wherein at least  
2 one of said walls is provided with a heat sealable  
3 material at said closure within which all of said  
4 pressure sensitive material thereat is embedded, and said  
5 non-pressure sensitive material is said heat sealable  
6 material.

1           21. The roll stock of claim 16 wherein there is a  
2 pattern of said pressure sensitive material.  
3

1           22. A method of processing flexible packaging  
2 material of the type used to make bags for food products,  
3 comprising in order:

4           (a) providing a roll of a substrate;

5           (b) making a web of said substrate from said roll;

6           (c) applying a pressure sensitive material to  
7 discrete locations at which it is desired to define  
8 resealable closures in bags made from said packaging  
9 material;

10          (d) applying a non-pressure sensitive material over  
11 said pressure sensitive material at said discrete  
12 locations; and thereafter

13          (e) forming said web into a roll.

1           23. The method of claim 22 wherein said non-  
2 pressure sensitive material is a closure sealing  
3 material.

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1           24. The method of claim 22 wherein said step of  
2           applying a pressure sensitive material to said discrete  
3           locations includes applying a thickness of between about  
4           .5 mils and about 1.5 mils of said material to said  
5           discrete locations.  
6

1           25. The method of claim 22 wherein said substrate  
2           is thermally stable and further including the step of  
3           applying a layer of heat sealable material to said web  
4           prior to said application of said pressure sensitive  
5           material, and applying said pressure sensitive material  
6           to said layer.

1           26. The method of claim 22 wherein said substrate  
2           is thermally stable and said step of applying a non-  
3           pressure sensitive material over said pressure sensitive  
4           material includes applying a layer of heat sealable  
5           material having a thickness in the range of about 0.2  
6           mils to about 0.7 mils over said pressure sensitive  
7           material.

1           27. The method of claim 25 wherein said step of  
2           applying a non-pressure sensitive material over said  
3           pressure sensitive material includes applying another  
4           layer of a heat sealable material over substantially the  
5           full surface of said web.

1           28. The product of the process of claim 22.

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1           29. A roll stock of flexible packaging material to  
2 be used to make resealable bags for food products  
3 comprising:

4           (a) a thermally stable substrate;

5           (b) heat sealable material on said substrate at  
6 locations selected for the formation of heat seals for  
7 bags made from said roll stock; and

8           (c) A pattern of a pressure sensitive material  
9 embedded in said heat sealable material, said pattern  
10 being selected relative to said heat sealable material to  
11 provide pressure sensitive material operable to seal  
12 closures in bags made from said roll stock by destroying  
13 heat seals formed in said bags with said heat sealable  
14 material at the locations at which said pressure  
15 sensitive material is embedded therein.

1           30. The roll stock of claim 29 wherein said pattern  
2 has a thickness of between about .5 mils and about 1.5  
3 mils.

1           31. The roll stock of claim 29 wherein said heat  
2 sealable material covers substantially all of said  
3 pressure sensitive material.

1           32. The roll stock of claim 31 wherein said heat  
2 sealable material covering substantially all of said  
3 pressure sensitive material has a thickness thereat in  
4 the range of about 0.2 mils to 0.7 mils.

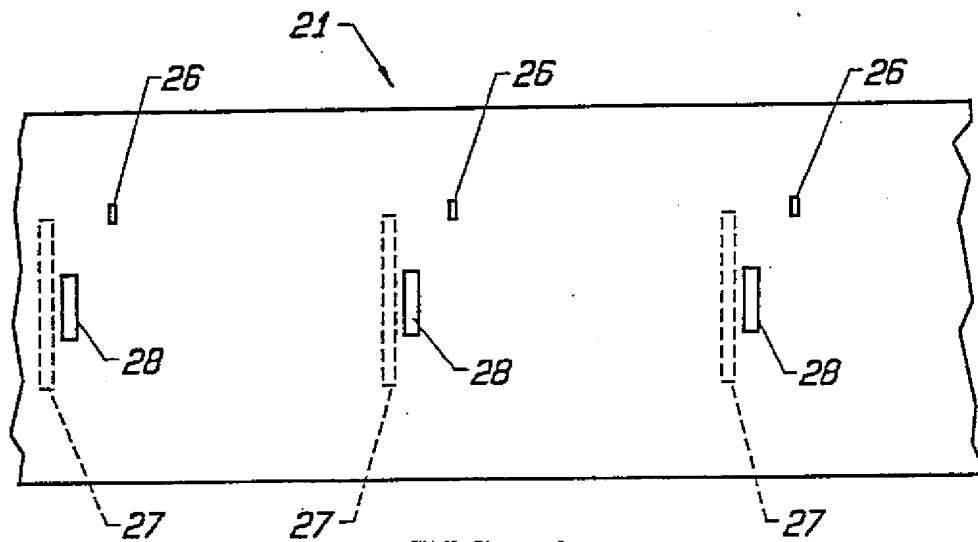


FIG. 1

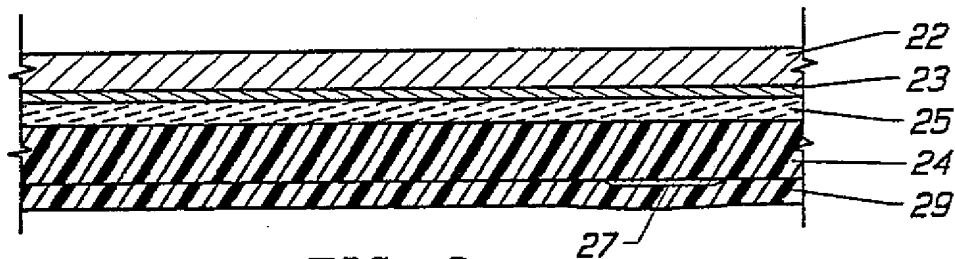


FIG. 2

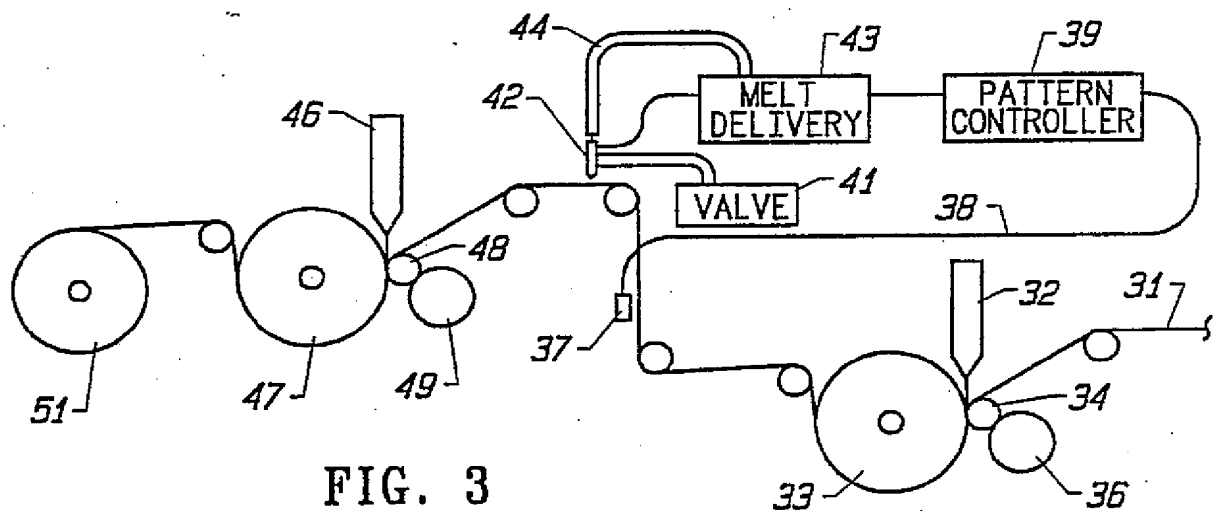


FIG. 3

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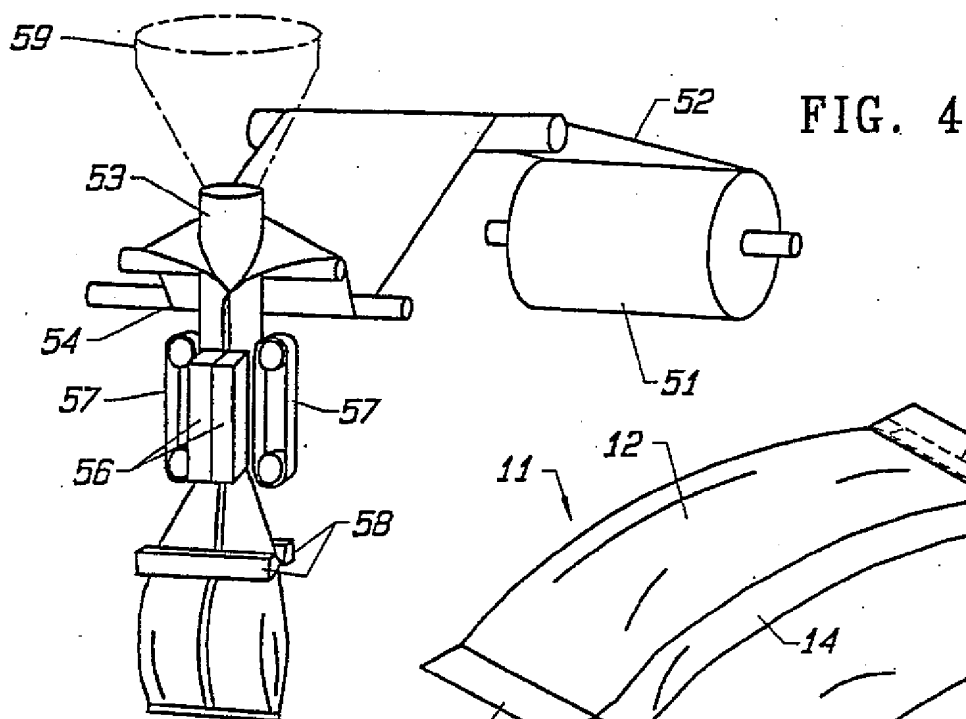


FIG. 4

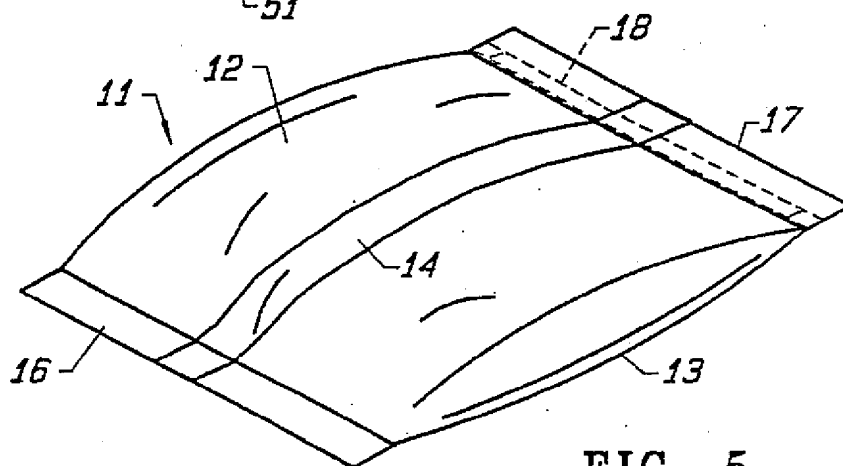


FIG. 5

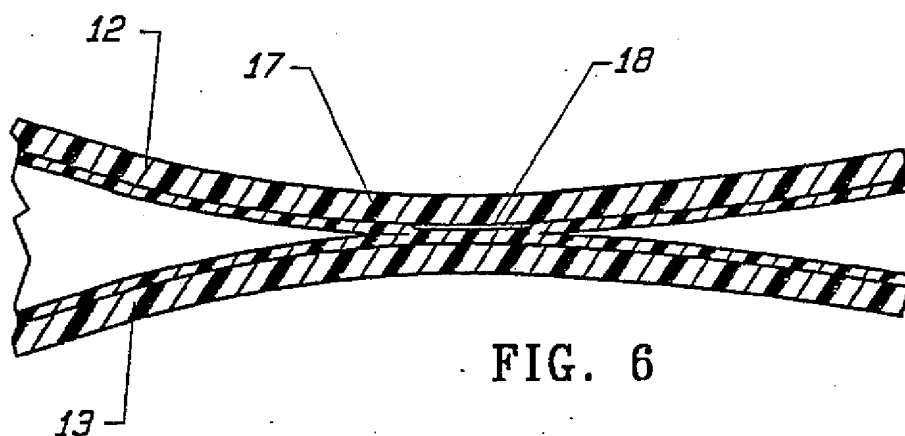


FIG. 6

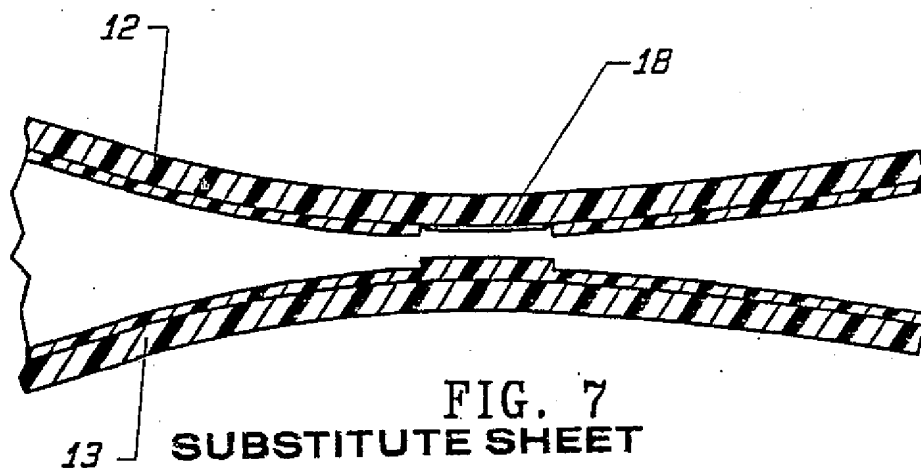


FIG. 7  
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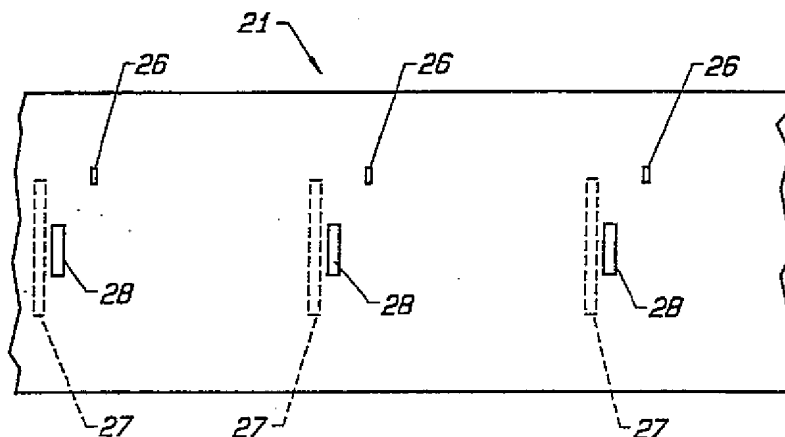




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<p>(21) International Application Number: PCT/US92/09499 (22) International Filing Date: 6 November 1992 (06.11.92) (30) Priority data: 790,647 8 November 1991 (08.11.91) US (71) Applicant: PACKAGING INDUSTRIES, INC. [US/US]; 2450 Alvarado Street, San Leandro, CA 94577 (US). (72) Inventor: BORLAND, G., Barton ; 7202 Dumas Place, New- ark, CA 94560 (US). (74) Agent: KIRCHER, William, B.; Kokjer, Kircher, Bowman &amp; Johnson, 911 Main Street, Suite 2414, Kansas City, MO 64105 (US).</p>		<p>(81) Designated States: CA, JP, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, SE).  <b>Published</b> <i>With international search report Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 10 June 1993 (10.06.93)</p>

(54) Title: ROLL STOCK FOR MAKING RESEALABLE BAGS AND RESEALABLE ROLL-FORMED BAG



(57) Abstract

A roll stock of flexible packaging material is described for forming food product bags which are resealable and yet can be formed by standard form and fill machinery. The roll stock (21) includes eyespots (26) to control the application of a pressure sensitive material (27) and a locating strip (28) to facilitate finding the pressure sensitive strips (27) at discrete locations selected for bag mouths. The invention includes the bag resulting from the use of the roll stock, as well as the method of processing the roll stock to provide resealable bag characteristics to the same.

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## INTERNATIONAL SEARCH REPORT

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**A. CLASSIFICATION OF SUBJECT MATTER**

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US CL : 428/195; 383/64, 427/177

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 428/195; 383/64, 427/177

428/212, 906, 213, 334, 335; 383/95, 87, 78, 61

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y,P	US, A, 5,089,320 (STRAUS ET AL) 18 FEBRUARY 1992 see entire document.	1-32
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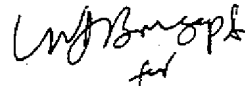
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